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A CASE REPORT ON MELIOIDOSIS WITH LEFT PLUERAL EFFUSION, ACUTE KIDNEY INJURY AND ACUTE RESPIRATORY DISTRESS SYNDROME

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ABSTRACT

Melioidosis is a communicable disease caused by Burkholderia Pseudomallei, a gram negative bacteria. Depending on the type of organism, the symptoms may also differ. Pulmonary, bloodstream, local and disseminated infections are the forms of melioidosis. In this case, the patient was admitted with fever with chill and rigors, and breathing difficulties for past few days. Bronchoalveolar lavage culture and sensitivity test of the patient showed growth of "Burkholderia Pseudomallei". Early diagnosis and appropriate antibiotic treatment improved the patient condition. The standardized treatments include intravenous Ceftazidime or meropenem, followed by Sulphamethoxazole/Trimethoprim as eradication therapy.

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INTRODUCTION

Melioidosis also called whitemore's disease, which is an infectious disease that can infect humans or animals. The causative organism for this disease is the bacterium Burkholderia Pseudomallei. It is predominantly a disease of tropical climate. The Burkholderia Pseudomallei bacteria are found in contaminated water and soil. It spreads to human and animals through the direct contact with the contaminated source [1]. The major risk factors for this disease are diabetes, liver disease, renal disease, thalassemia, chronic lung disease, cancer or another immune suppressing conditions. Periodical cases have been reported from many parts of the world where, it has an epidemic potential with high rate of fatality cases. In non endemic areas melioidosis may be misdiagnosed with common diseases and this may lead to fatality [2]. Treatment of melioidosis starts with intravenous antimicrobial therapy for 10-14 days, followed by 3-6 months of oral antimicrobial therapy [1]. Here we report a case of meliodosis with left pleural effusion, Acute Kidney Injury (AKI) and Acute Respiratory Distress Syndrome (ARDS). This case is reported because of the rarity of the disease and to highlight the importance of treating multiple co-morbidities.

CASE REPORT

A 48 year old female patient having medical history of type 2 diabetes on oral hypoglycaemic agent presented with complaints of fever with chills and rigors for one week and breathing difficulty for 5 days. Patient treated from outside and symptoms were not resolved. On general examination patient's BP was elevated (180/90 mmhg). Patient was found to have tachycardia (146 bpm) and hypoxia (spO2;82%). She was shifted to ICU for further management. She was intubated in view of desaturation. Covid 19 TRUNAAT was negative. Routine blood investigation showed elevated WBC (13,700 cells/cumm), ESR (115mm/hr), creatinine (8.0mg/dl), urea (347mg/dl), SGOT (134), SGPT (89), CRP (372), Troponin-1 HS (807.7 pg/ml). The haemoglobin level was reduced (8.4gm/dl). Patient had thrombocytopenia (44000 cells/cumm), hypokalemia (2.74 mmol/l). In urine routine examination, presence of albumin, sugar, trace elements, 4-6 /Hpf pus cells, 40.45 Hpf RBCs and bacteria were present. Serology DENGUE/AG/IGM-IGG-CARD showed negative. Biopsy for bronchial mucosa showed tiny fragments of bronchial mucosa with acute inflammation and collections of acute inflammatory exudates. Histopathological result was negative for malignant cell. Pulmonology consultation was sought and bronchoalveolar lavage culture and sensitivity test showed growth of "Burkholderia Pseudomallei" and the patient was diagnosed as Meliodosis with ARDS, AKI and Left pleural effusion.

The patient was treated with antibiotics inj. Piperacillin + Tazobactam 4.5gm iv tid on day 1 & 2 of admission, inj. Doxycyclin 100mg iv bd for first 4 days and blood culture and sensitivity test showed resistance to doxycyline and sensitivity to ceftazidime hence ceftazidime administration is started, 2gm from day 3 to till the day of discharge, inj. Meropenam 1gm tid from day 2 to day 4. Nephrology consultation was done and advised for hemodialysis. 2 session of dialysis done on day 3 and day 4 of admission (inj. Ceftazidime pre dialysis dose 2gm and post dialysis dose 1gm). Diabetes was treated with inj. Human atrapid 10-10-10 subQ for all the day. On the day of admission the patient was found to have hypokalemia, correction done with syp. Potassium chloride 20ml TID for 4 days. Syp. Oseltamivir 75mg 6.3ml bd for 1st day only. Tab. Cilnidipine 10mg od given for 15 days and dose increased to 20mg od for next 6 days. Inj. Heparin 5000 iu and other supporting measures were given. She became symptomatically better and weaned from ventilator on 5th day of admission and was able to maintain saturation on O2. Patient shifted to room side on 11th day of admission. Antibiotics were continued, creatinine is improving day by day. Hence the patient is discharged in stable state with the advise to continue antibiotics from the local hospital. Discharge medications include inj. Ceftazidime 2gm iv od for 12 days, inj. Huma atrapid 20-20-0 subQ for 2 weeks, inj. Regular insulin (30/70)0-0-22 subQ for 2 weeks ,Tab .Esomeprazole 1-0-0 for 2 weeks ,Tab .cilnidipine 20mg 1-0-1 for 2 weeks ,syp .TUS Q-X 10ml TDS . patient advice to review after 2 weeks with CBC, S.E, RFT, CRP, FBS ,PPBS, CXR- PA in general medicine department. On review the patient's condition was improved. Creatinine level was reduced from 8mg/dl to 1.2mg/dl. Inj. Ceftazidime 2gm changed to T. Trimethoprime+Sulphamethoxazole 160/800mg bd for next 2 months.

DISCUSSION

Meliodosis can present either acute form or a sub acute course. It imitates like other diseases and may cause unnecessary delay in initiating appropriate antibiotics. Individuals who have frequent contact with soil or ground water most often get B.pseudomallei infection, particularly during the monsoon season, likely through pre-existing skin lesions or penetrating wounds, especially immune-impaired patients [3]. Meliodosis is diagnosed by isolation of B.pseudomallei from clinical specimens. This can either be blood, tissue samples or aspirate cultures obtained from abscesses [4]. Diabetes is the single most important predisposing factor in meliodosis and this patient having a medical history of diabetes and on oral hypoglycemic agents for past few years.

Pneumonia, pleural effusion, fever, hepatospleenomegaly, localized abscess and septicaemia are most common clinical presentations. This patient was admitted with fever, pleural effusion, AKI and ARDS. Pulmonary melioidosis is mainly presented with pneumonia and septic shock, which cause the highest mortality. Appropriate radiological imaging of abdomen, pelvis and chest is recommended for all patients with meliodosis which helps to find localized abscesses. In fifteen percent of the cases Chronic melioidosis can often present with pleural effusions [5].

Culturing the organism from a clinical samples (sputum, pus, pleural collection, urine, blood, or throat swab are uses for definitive diagnosis of melioidosis [6-7]. Pulmonary melioidosis may have symptoms similar to pulmonary tuberculosis, both clinically and radiologically in endemic areas, isolation of B. pseudomallei in culture is the only way to differentiate melioidosis from tuberculosis [7].

According to international consensus guidelines for the treatment and prophylaxis of melioidosis [8], intravenous (IV) Ceftazidime 50 mg/kg every six hours for 14 days as an initial intensive antibiotic regimen followed by oral trimethoprim/sulfamethoxazole (co-trimoxazole) 320/1600 mg/kg every 12 hourly for three months as eradication therapy in patients

diagnosed with meliodosis. Patients will change to oral medication with co-trimoxazole on the basis of clinical improvement and should be given until twenty weeks to prevent recurrence. Ceftazidime is the First line drug of treatment, for treatment failures or severe infections carbapenems are reserved. In the eradication phase, Co-trimoxazole is preferred and clavulanic acid /amoxicillin is the alternative drug of choice [8]. The key for successful treatment is the timely selection of adequate sensitive antibiotics. In India, melioidosis is a treatable new infection and should be treated as an opportunistic infection in immune compromised individuals [5].

This case is reported because of the rarity of the disease and to highlight the importance of treatment for melioidosis patients with AKI, ARDS and pleural effusion even in non endemic areas and to highlight the necessity of early diagnosis because the treatment of this infection requires specific intensive and eradication therapy for longer period of time.

CONCLUSION

Due to low index of suspicion, insufficient diagnostic techniques, and the fact that it imitates common diseases such as tuberculosis, melioidosis is probably under-diagnosed in India. The mortality of this disease is high Due to lack of awareness of such infections in non-endemic regions, the diagnosis may get delayed and it will delay the initiation of appropriate antibiotics. Because of early diagnosis and selection of appropriate antibiotics, the patient's outcome was satisfactory.

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